

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1, 3, 5-7, 9, 11, and 12 are pending in this application. Claims 1 and 7 are independent. The remaining claims depend, either directly or indirectly, from claims 1 and 7.

Claim Amendments

Claims 1 and 7 have been amended by this reply to clarify the present invention recited. No new matter has been added by these amendments. Support for the amendments can be found, at least, in paragraph [0028] of the application as filed.

Rejection(s) under 35 U.S.C. § 103

Claims 1, 3, 5, 7, 9, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,989,354 issued to Thaemlitz, et al. ("Thaemlitz") in view of U.S. Patent No. 6,631,764 issued to Parlar, et al. ("Parlar"). Independent claims 1 and 7 have been amended by this reply. To the extent this rejection still applies to the claims as amended, the rejection is respectfully traversed.

Claim 1 recites, *inter alia*, a method of controlling the inversion of a drilling fluid that includes mixing the drilling fluid with a delayed phase changing agent selected from the group consisting of aliphatic amine acids, salts of aliphatic amine acids and combinations thereof, wherein the delayed phase changing agent is delivered in the form of a pill, the pill

comprising a carrier fluid, a viscosifier and the delayed phase changing agent, and wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore.

Claim 7 recites, *inter alia*, a method of controlling the wettability of a filtercake that includes exposing the filtercake to a delayed phase changing agent selected from the group consisting of aliphatic amine acids, salts of aliphatic amine acids and combinations thereof, wherein the delayed phase changing agent is delivered in the form of a pill, the pill comprising a carrier fluid, a viscosifier and the delayed phase changing agent, and wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore.

Thus, both claims 1 and 7 require a delayed phase changing agent is delivered in the form of a pill, the pill comprising a carrier fluid, a viscosifier and the delayed phase changing agent, and wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore.

Thaemlitz is generally directed to a method of using an invert emulsion fluid that includes placing the invert emulsion fluid in a well bore and contacting the invert emulsion fluid with an acid solution to reversibly convert the invert emulsion to an oil-in-water emulsion. As the Examiner admits, Thaemlitz fails to disclose or suggest Applicants' recited amine acid as the organic acid, the inclusion of a viscosifier, or the delivery of the acid solution in the form of a pill, wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore.

At Col. 7, lines 26-29, Thaemlitz discloses the acid solution is merely injected into the well bore to protonate the amine surfactant, thereby converting the fluid on the filter cake from a water-in-oil emulsion to an oil-in-water emulsion. Thaemlitz further discloses an

acid solution being an acid dissolved in water, preferably a 1 to 36 wt% solution of HCl in water (see Col. 6, lines 56-65.) Thaemlitz also discloses that the acid solution may contain an anionic sulfonate surfactant for preventing the formation of aqueous acid solution-crude oil emulsions and crude oil sludging. As known to one of minimal skill in the art, the presence of a surfactant lowers the surface tension of the solution. This lower surface tension facilitates inclusion of the acid solution within the drilling fluid, which is in direct contrast to Applicants' recited delivery of the acid solution in the form of a pill comprising a viscosifier, wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore.

Accordingly, Thaemlitz not only fails to teach or suggest Applicants' recited delivery of the delayed phase changing agent as a pill, but in-fact, teaches away from such a delivery.

The Examiner alleges Parlar cures the defects in Thaemlitz by disclosing a method of removing a filter cake from a well bore wherein filter cake removal is effected by injecting a slug or "pill" comprising an acid solution to reverse the wettability of the filter cake (i.e., invert the emulsion drilling fluid within the filter cake.) Parlar is alleged to disclose the use of amine acids (e.g., EDTA) and that the acid solution may further comprise a viscosifier.

Parlar is generally directed to a method of gravel packing a wellbore using a carrier fluid that comprises an aqueous liquid having a pH that is outside the range at which the filter cake emulsion is stable. The aqueous liquid is present (in the carrier fluid) in an amount effective to invert the water-in-oil emulsion in the filter cake when the carrier fluid comes into contact with the filter cake (see Abstract.) Parlar fails to disclose or use the terms "slug", "pill", or any equivalent thereof relating to delivery of a delayed phase changing agent.

Parlar discloses that when the filter cake comprises a water-in-oil emulsion, the aqueous phase of the carrier fluid can include an acid in an amount effective to invert the emulsion when the carrier fluid comes in contact with the filter cake. *See* Col. 2, lines 55-64. Parlar further discloses “[w]here the gravel pack carrier fluid has an external water phase (or its only liquid phase is a water phase), it preferably further comprises a viscosity enhancing agent... it is recommended to first displace the oil-base drilling mud with displacement fluid that has a composition compatible with the gravel pack carrier fluid and that does not comprise pH modifying agent or chelating agent; then, the gravel pack carrier fluid will be injected.” Col 3, line 65 to Col. 4, line 7.

Accordingly, Parlar fails to disclose or suggest Applicants’ recited delivery of the delayed phase changing agent as a pill, but in-fact, teaches removal of the water-in-oil emulsion prior to injecting the phase changing agent into the wellbore. As such, Parlar fails to cure the deficiencies in Thaemlitz.

As shown above, neither Thaemlitz nor Parlar, whether considered separately or in combination, shows or suggests a delayed phase changing agent delivered in the form of a pill, the pill comprising a carrier fluid, a viscosifier and the delayed phase changing agent, and wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore, as required by independent claims 1 and 7. Thus, independent claims 1 and 7 are patentable in view of Thaemlitz and Parlar. Dependent claims are patentable for at least the same reasons. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 6 and 12 are rejected under 35 U.S.C. § 103 as being unpatentable over Thaemlitz in view of Parlar, as applied to claims 1 and 7, and further in view of U.S. Patent No. 6,325,149 issued to Dobson, Jr. et al. (“Dobson”). This rejection is respectfully traversed.

As discussed above with respect to independent claims 1 and 7, from which claims 6 and 12 depend, Thaemlitz and Parlar neither show nor suggest a delayed phase changing agent is delivered in the form of a pill, the pill comprising a carrier fluid, a viscosifier and the delayed phase changing agent, and wherein the pill is in the form of a slug of fluid that remains generally uniform within the well bore, as recited in claims 1 and 7. Dobson, which the Examiner only alleges as disclosing the use of hydroxyethylcellulose as a viscosifier for a well treatment fluid or "pill," does not provide what Thaemlitz and Parlar lack, with respect to independent claims 1 and 7.

Dobson is generally directed to solids-free, viscous fluids (pills) for various well workovers. Dobson fails to disclose or suggest applicants' recited inclusion of a delayed phase changing agent within a pill such that the delayed phase changing agent is delivered as a slug of fluid that remains generally uniform within the well bore. As such, Dobson fails to remedy the defects in Thaemlitz alone, or in view of Parlar. Thus, claims 1, 7, and all claims depending therefrom are patentable for at least these reasons. Accordingly, withdrawal of the rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 05542/072002).

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